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CRITICAL GERMAN SUBMARINE OPERATIONS VERSUS ALLIED CONVOYS DURING MARCH 1943: AN OPERATIONAL ANALYSIS

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War college or the Department of the Navy.

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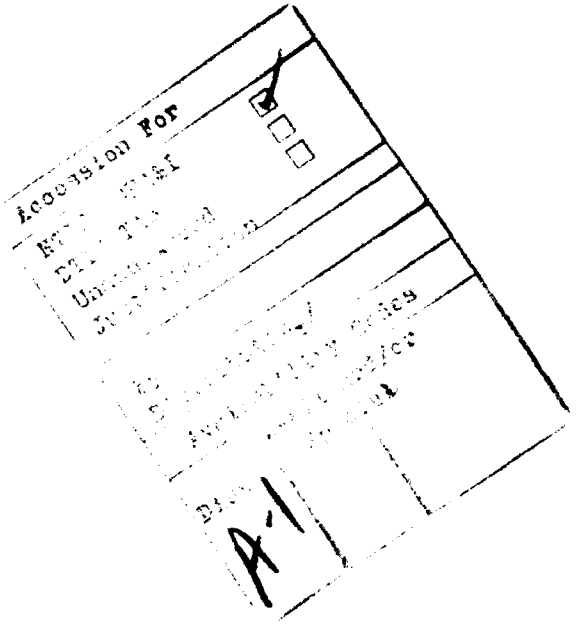

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PREFACE

The climax of the World War II maritime campaign for the Atlantic occurred during March 1943. This period produced three significant anti-convoy operations, two major and one minor, which pitted the German U-boat wolfpacks (submarine attack screens) against American and British convoys.

The Allies suffered catastrophic losses to their merchant fleets from October 1939 to May 1943, from German U-boat attacks, climaxed by the greatest single month losses experienced in March 1943. Although history recorded Germany's ultimate defeat in the Battle of the Atlantic, these successful operations provided considerable reason to believe Germany was on the brink of a resounding victory. Only as a result of several coinciding factors, which included the advent of support groups, escort carriers, long range aircraft and improved intelligence, did fortune shift in favor of the Allies and the carnage was stopped.[1]

This paper will focus on the critical elements of Admiral Doenitz's operational design and scheme for the March anti convoy offensive. Further, the strategic and operational decisions which led Germany to both magnificent successes and the ultimate defeat of her submarine force will be discussed. Although numerous tactical issues contributed to Germany's successes and failures, this work will address only strategic and

operational issues which affected the operational level of war.

The format for this work will consist of the historical background which preceded the spring offensive, a brief description of the operational plan, the analysis of the operations, a post offensive historical summation, and the derived conclusions and lessons learned for current and future operational planning.

CHAPTER II

INTRODUCTION

The failures of the German Navy, during World War I, and the ship building restrictions of the both the Versailles Peace Treaty and the Anglo-German Naval agreement of 1935, played a considerable role in the planning and allocation of German naval assets through 1937. The German U-boat fleet was limited to 45 percent of British U-boat tonnage, by the Anglo-German agreement. This resulted in a fleet of less than 25 U-boats in a state of readiness that was weak at best.[1] Note: the terms U-Boat, derived from the German word "Unterseeboot" meaning 'under water boat,' and submarine will be used interchangeably throughout this paper.[2]

Different views of the operational uses and necessity of submarines led the German High Command to postpone U-boat construction pending resolution of how to best employ submarines. As a result, the U-boat force, which totaled only thirty six, remained small after having only one additional submarine delivered during 1937.[3]

In May 1938 Hitler told the Commander-in-Chief, Naval Forces, of the strong possibility of war with Britain but that there was no immediate prospect of conflict.[4] In September 1938 a naval committee was established to make recommendations for increased shipbuilding and reassessment of German naval strategy in the event of a potential war with Britain. The Z-Plan, a nine year construction program was the result.

The plan was designed to achieve a balanced fleet of battleships, cruisers, destroyers, Deutschlands (pocket battleships) torpedo boats and submarines. Submarines and battleships were given the highest construction priorities in support of the German naval strategic concept.[5]

The strategic concept behind the naval buildup was a combined "fleet in being" and "commerce raider" in which the main fleet would tie down the British Home Fleet and the U-Boats would be dispersed for attacks upon merchant shipping, Britain's lifeline.[6]

The Z-Plan was not without faults; specifically, it was predicated upon the assumption that Britain would not engage in an equally aggressive building program. Secondly, the success of the building program was dependent upon Germany's ability to avoid war for at least six years.[7]

In January 1939 Hitler approved the building plan and subsequently abrogated the Anglo-German Naval Agreement with the understanding that he would take all the necessary diplomatic actions to prevent war prior to 1944.[8] Although Hitler guaranteed no immediate war, the abrogation of the Anglo-German Agreement in January of 1939 lead many to believe war could not be avoided in the near term.[9] The invasion of Czechoslovakia and finally the invasion of Poland on 1 September 1939, made Hitler's intentions for immediate war crystal clear and the Z-Plan was no longer a viable option.

At the outset of war the state of naval affairs showed a

significant advantage to the British, 7:1 in battleships, 6:1 in cruisers, 9:1 in destroyers, 3:1 in carriers and the U-boat arm was one sixth the estimated strength required to successfully attack British commerce.[10]

> On September 1 1939 hostilities with Poland began. On September 3 Britain and France declared war on us (Germany). The navy was like a torso without limbs. The U-boat arm possessed in all forty-six boats ready for action... of these only twenty-two were suitable for service in the Atlantic.[11]

Upon commencement of war, the naval building plan shifted focus to the rapid completion of the two battleships and cruiser already under construction. The submarine building program was accelerated to produce twenty to thirty U-boats per month. The U-boats building program was given priority for two reasons, the advantage of an offensive platform that proved its worth during World War I, and the U-boats had a better chance of surviving an air assault since the U-boat construction sites were concrete fortified, an advantage unavailable to larger naval vessels.[12]

The maritime campaign for the Atlantic between 1939 to 1943, from the German perspective, occurred in five distinct phases.

Phase I: the commencement of hostilities until the fall of France in June 1940. This phase was characterized by individual U-Boat attacks on British merchant ships, mine laying operations along the British coast and daring coastal penetration of British ports and anchorages. The most glaring difficulty was the lack of available submarines, which made U-boat group tactics impossible, during one period only three U-boats were available

for Atlantic operations. Despite the small number of U-boats, significant allied shipping was sunk. An average of 26 ships at 106,000 tons per month was sunk with the average loss of two U-boats per month. Total losses for both sides included 234 Allied ships of 954,000 tons versus 18 U-boats.[13]

Phase II: night surface attacks July 1940 to March 1941. During this period the fall of France led to German acquisition of France's western harbors and facilities. Free access to the Atlantic led to the elimination of a British blockade of the North Sea[14]. Additionally, the surface attacks proved to be an effective counter against British Antisubmarine Sonar (ASDIC). Allied losses began to mount considerably and reached an average of 42 ships at 224,000 tons per month while 2 U-boats per month were lost. Total losses for both sides included 378 Allied ships of 2,016,000 tons versus 18 U-boats.[15]

Phase III: first use of German "Wolfpacks," groups of U-boats in screen formations designed to attack convoys. The British made progress in anti-submarine warfare, April 1941 to December 1941. Merchant losses declined as a result of the first converted escort carrier and its supporting aircraft, the advent of Direction Finding Stations (HF/DF) and improved radar. Although these improvements were effective, they were limited in quantity and not available to most Allied forces. Germany's U-boat production had finally reached fifteen per month which helped her maintain a significant advantage and continued the slaughter of Allied convoys[16]. Allied losses were 34 ships

averaging 166,000 tons per month, U-boat losses increased to 3.5 per month. Total losses for both sides included 216 Allied ships of 1,500,000 tons versus 31 U-boats.[17]

Phase IV: U-boat offensive along North American coast, Operation "Paukenschlag," January to July 1942. America entered the war against Germany unprepared for the U-boat threat, during this seven month period four hundred ninety two ships were sunk along the eastern seaboard by no more than ten U-boats. This period provided Germany U-boats with their greatest successes to date until America was finally able to establish an effective convoy system in July 1942.[18] Allied losses peaked at 98 ships averaging 510,000 tons per month while U-boat losses continued to rise to 4.5 per month. Total losses for both sides included 686 Allied ships of 3,570,000 tons versus 32 U-boats.[19]

Phase V: Convoy battles in North Atlantic with large attack screens, August 1942 to May 1943. The production goal of thirty U-boats per month, achieved by the fall of 1942, greatly contributed to peak intensity of the U-boat war. Other contributing factors to German success in the Atlantic were the weakened escort fleet which resulted from the Allied diversion of escorts to support the Mediterranean campaign and the requirement to remain closer to British home waters in anticipation of a cross channel invasion.[20]

Included in Phase V were the climactic operations of March 1943, which saw the greatest convoy battles and highest total damage inflicted upon the Allied merchant fleets.

Allied losses reached an average of 127 ships of 627,000 tons per month while U-boat losses continued to rise to a peak of 12.5 per month. Total losses included 1,270 Allied ships of 6,275,000 tons versus 126 U-boats.

Despite the significant Allied losses this period produced the turning point of the war from German to Allied advantage and led to Germany's eventual capitulation of the Battle of the Atlantic. The improved Allied anti-submarine measures proved to be too great for the U-boat force. Table I displays the chronology of the March operations.

Table I

CHRONOLOGY OF MARCH 1943 CONVOY OPERATIONS

DATE	CONVOY # and COMP	ATK GP	OP DESCRIPT	RESULT
9MAR	ON-169, 15 ships	RAUBGRAF 14 U-BOATS	NO ENGAGEMT	CONVOY ESCAPED IN BAD WEATHER
10MAR	SC-121, 26 ships	WESTMARK 17 U-BOATS	4 DAY OP	13 SHIPS SUNK, 0 U-BOATS
11MAR	HX-228, 35 ships	NEULAND 12 U-BOATS	1 DAY OP	5 SHIPS SUNK, 2 U-BOATS
13MAR	ON-170, 11 ships	RAUBGRAF 14 U-BOATS	MINOR ENGAGMT	1 SHIP SUNK, ALLIES ALERTED TO ATTACK GP POSITION
15MAR	SC-122 60 ships HX-229 44 ships HX-229A 36 ships	STURMER 14 U-BOATS, DRANGER 11 U-BOATS, RAUBGRAF 12 U-BOATS	MAJOR OPERATION	49 SHIPS SUNK, 3 U-BOATS

CHAPTER III

ADMIRAL DOENITZ'S PLAN

The climactic anti-convoy operations of March 1943 were precipitated by several significant events; Admiral Karl Doenitz, a staunch proponent of the submarine force, was promoted to Commander-in-Chief of the German Navy and given greater influence over the conduct of the Atlantic war; the submarine fleet had finally reached sufficient numerical strength to cover the majority of the Northern Atlantic; technical progress was gained with German torpedoes and material components; and German intelligence achieved significant success in estimating enemy intentions.[1] Each of these factors significantly contributed to the decision to plan and execute largest convoy assault of World War II.

In developing the operational plans for the convoy battles in the Atlantic theater the following issues predominated; (1) How to optimize submarine employment to gain the maximum benefit from each engagement, (2) when to accept battle such that enemy defenses would be least effective, (3) How to gain and utilize intelligence and minimize enemy counter-intelligence exploitation, (4) How to optimize sustainment in order to continue battles to proper conclusion.

The strategic objective for the German U-boat force was the destruction of the British merchant fleet, the British center of gravity was, therefore, her merchant shipping.[2]

The operations plan, as conceived by Grand Admiral Doenitz,

consisted of the following five elements:

(1) German submarine experience against convoys during World War I proved that individual submarines could not defeat convoys, rather a coordinated effort was required to pit several U-boats against the convoy in an arrangement called a "wolfpack" or submarine attack screen. Certainly attack screen employment had many tactical implications none of which will be discussed in this paper. Suffice it to say the proper employment of the attack screens was an operational issue which was essential to German successes during the March operations.

(2) The U-boat force was to be concentrated with as many boats as possible, in the Atlantic theater, to inflict maximum damage on the British and American merchant fleets as quickly as possible. Strike with audacity, strangle Britain's sea lines of communication and force her to sue for peace.

Specifically the plan called for the deployment of an attack screen along the great circle route in the choke point northeast of Newfoundland. Two additional attack screens were placed in the mid Atlantic gap in Allied convoy air coverage. Deployment in this manner provided the ability to quickly divert screens in the event a convoy avoided the first line of attack.[3]

The German U-boat fleet finally reached adequate pre-war planning levels by January 1943, nearly 200 boats were available to serve in the Atlantic and an additional 30 per month were to be delivered.[4] The increased number of U-boats reduced the distance between patrolling screens to about fifteen nautical

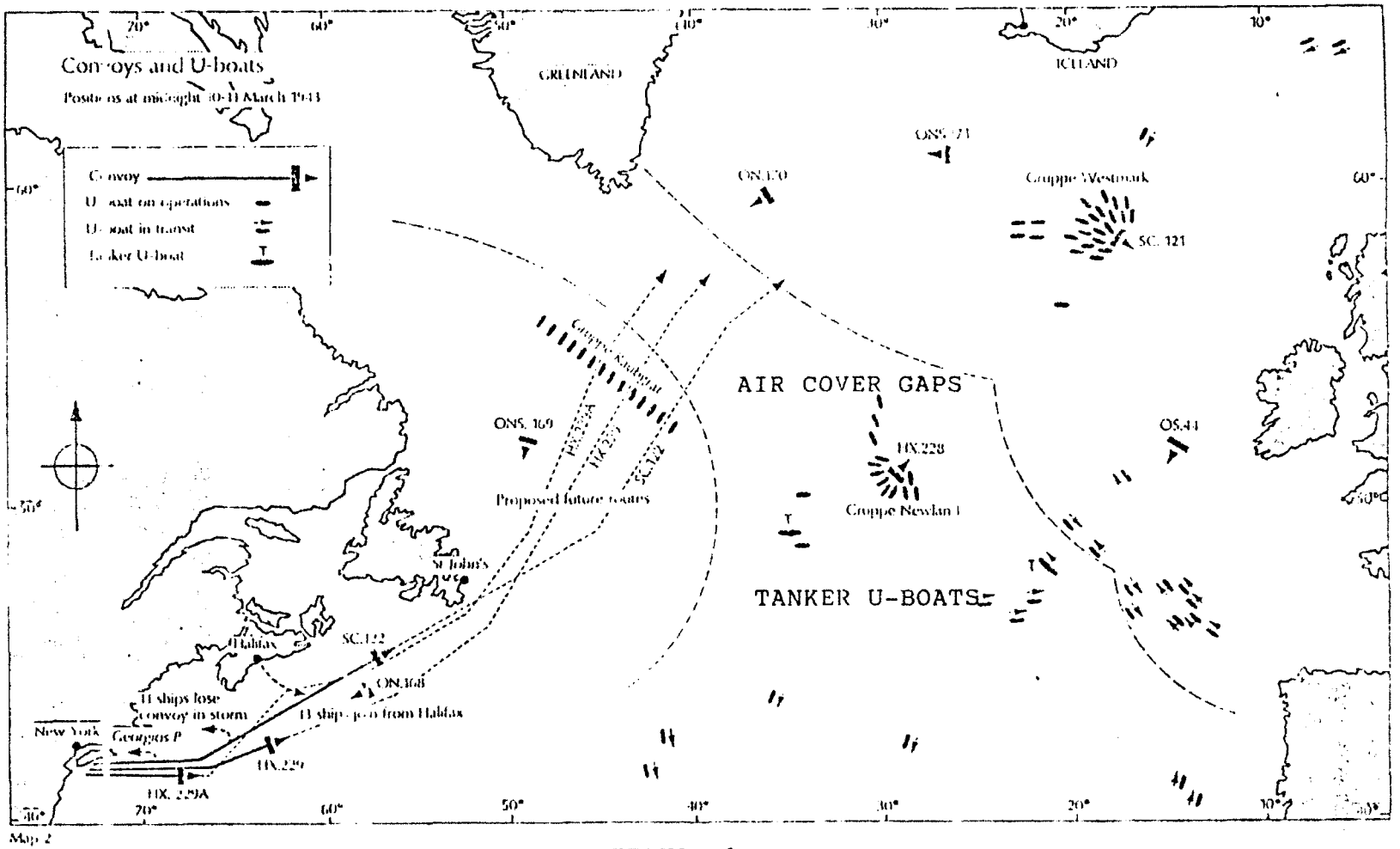
miles. This would make it nearly impossible for Allied convoys to slip between the screens.

(3) The plan was designed to account for enemy air cover. Specifically, Allied anti-submarine aircraft were limited in range and could cover a maximum of about 400 miles from shore outside of which submarine attacks would be concentrated.

> ...the main weight of our attack in the war on shipping had to be transferred back to operations against convoys to and from Britain, in mid-Atlantic, where they were beyond the range of land based air cover. It was in these areas on the high seas that the U-boats would enjoy the greatest freedom of action and could be employed without enemy interference.[5]

(4) The operations would be sustained by the deployment of tanker U-boats in remote locations, within the air gaps, to provide the ability to refuel, resupply and rearm the U-boats without the need to return to port. Figure 1 shows the planned location of attack screens near the gap in Allied convoy air cover and the tanker U-boat locations.

(5) The final element of Doenitz's plan focused on the use of strategic and operational intelligence to decipher enemy signals then determine convoy locations, transit routes and composition, and enemy intentions. Additionally, the plan included the use of FW 200 maritime reconnaissance aircraft to help locate convoy formations, short range JU-88s to protect the French coast, and long range HE 177 bombers to counter the Allied air threat which could eventually close the mid-Atlantic air gaps.[6] Unfortunately for Germany, technical flaws with the HE 177s rendered them unusable during the war.[7]



Map 2

FIGURE 1

GERMAN ATTACK SCREENS NEAR ALLIED AIR COVERAGE GAPS AND TANKER U-BOAT LOCATIONS

CHAPTER IV

OPERATIONAL DESIGN

The vehicle through which the March 1943 anti-convoy offensive will be evaluated will be an analysis of the specific critical elements of Admiral Doenitz's operational design and operational scheme.

The operational design must begin with strategic guidance. The strategic guidance provided by the German High Command was simply to win the Atlantic campaign with the U-boat assets available. U-boat construction was promised to be increased to twenty to thirty per month in support of the campaign.

Clearly the definition of German victory in the Atlantic was the defeat of England.

> The task of the U-boat arm. The Navy's principle task in the war, is the struggle with England, and the one and only possibility of bringing England to her knees with the forces of our Navy, lies in attacking her sea communications, in the Atlantic... the U-boat has the decisive advantage... and will always be the backbone of warfare against England.[1]

The Objective: The purpose of the Atlantic campaign was to attain the strategic objective of defeating Britain's merchant fleet. The operational objective was, therefore, to deny Britain the benefit of merchant shipping through maritime strangulation, which would disrupt Britain's essential sea lines of communications and limit her war fighting capability.

> Britain is completely dependent on her sea trade for food and raw materials, and above all for building up her military strength. The German Navy's task therefore is to attack the merchant ships carrying these supplies and, if possible, to disrupt them... Thus three tasks face the U-boat Command;
> (a) to plan and to carry out large scale expansion so that it may be possible to disrupt British sea trade during a war of long duration;
> (b) to dispose the available forces for maximum results at an early date;
> (c) to effect the operational control of the available forces.[2]

Enemy critical factors or the center of gravity for England was the Allied merchant shipping in transit to and from Britain. The condition required to achieve the strategic objective, as correctly perceived by Doenitz, was the destruction of Britain's lifeline, her merchant shipping.

One might question the selection of merchant shipping as the center of gravity and propose, rather, a direct attack upon Allied warships which if successful would then have led to unopposed access to merchant shipping. In the opinion of this writer, such a tact would have been futile at best for three specific reasons; (1) A lesson from the World War I experience was one could not assume the enemy would be willing to come forward and engage her warships in battle regardless of the aggressors desire, (2) Allied anti-submarine capabilities were improved such that German victory was far from assured and the limited technical abilities of the U-boats such as their slow speed and short submergence duration would have given the allied warships a significant advantage, (3) To delay the assault upon merchant shipping would have provided the Allies the opportunity

to build up a larger merchant fleet such that the required number of U-boats would have greatly expanded and the potential for quick success would have been eliminated.

The following critical elements of Admiral Doenitz's operational idea (scheme) for the March offensive will be analyzed; operational maneuver, operational fires, operational tempo, phasing, synchronization, operational deception, operational sustainment, and operational reconnaissance and intelligence.

The criteria for superior concept of operations is as follows: "Operational Idea (concept) must be creative and novel; must avoid discernible connections and patterns; must make use of ambiguity and deception; must create multiple options; must provide for speed and execution...."[3]

Operational Maneuver: "The disposition of forces to create a decisive impact on the operation... it must be directed against an operationally significant objective which forces the enemy to react operationally."[4]

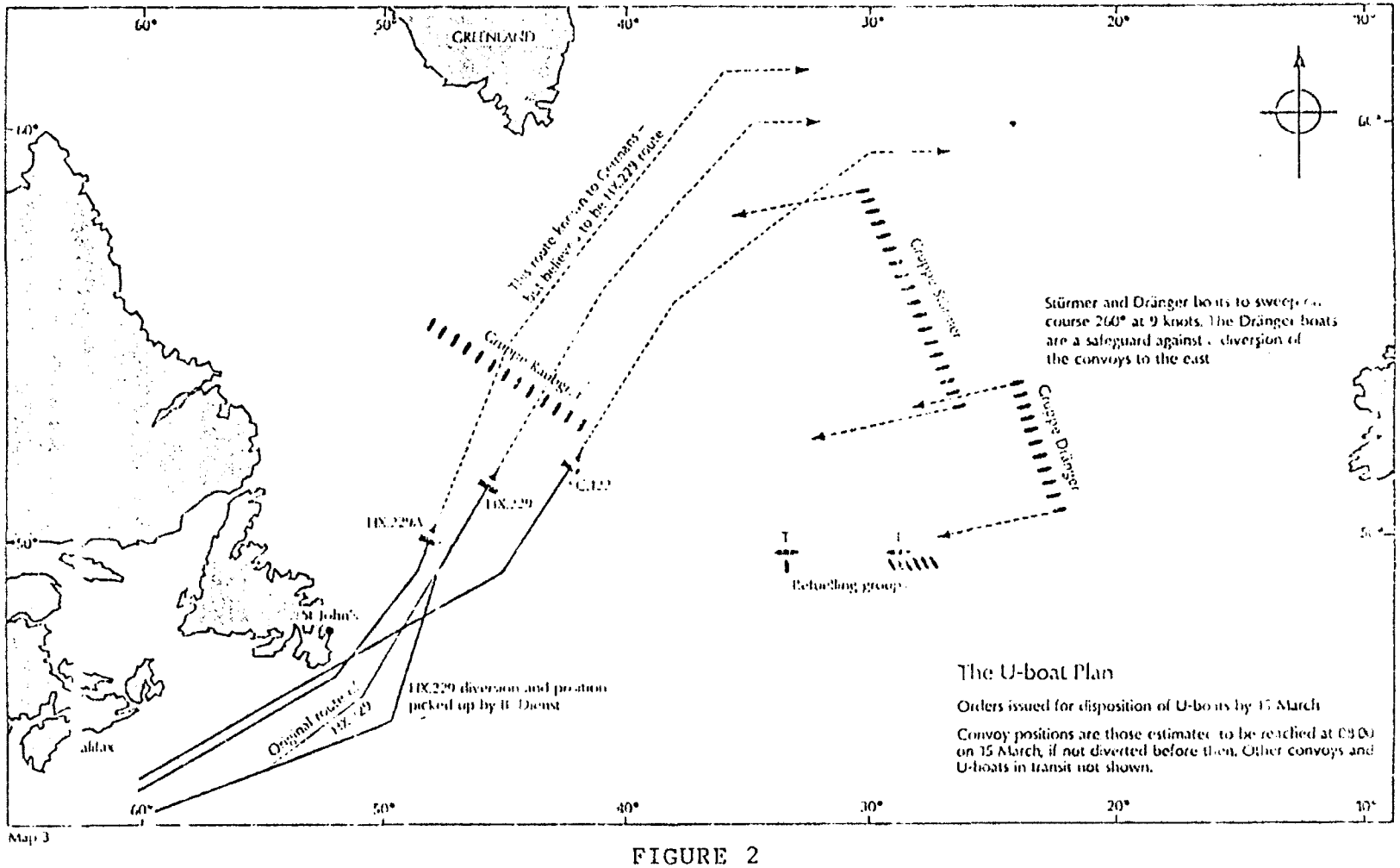
The operational impact of the convoy battles during the spring, specifically the first twenty one days of March 1943, was without precedent. Through German intelligence, Admiral Doenitz was alerted that the four convoys (SC121, HX228, SC122 and HX229) were enroute to Britain from North America. The four convoys consisted of greater than one hundred sixty merchant ships.[5] Certainly the destruction of the majority of these vessels would have delivered a crippling operational blow to the Allies.

Successful operational maneuver of the U-boat fleet would result from Germany's ability to concentrate fire power against vulnerable Allied convoys. In that regard, Doenitz knew he had to accept battle and had to position his boats where they could inflict the greatest damage. One attack group (Raubgraf) was placed along the suspected convoy transit route while additional groups, (Newland, Westmark, Sturmer and Drager) were assigned screen locations to provide additional rapid strikes when the convoys were located.[6] See Figure 2.

Without discussing the tactical aspects of the battles, the results of each of the operations and small battles certainly confirmed the effectiveness of operational maneuver. The concentration of U-boats placed precisely at the gaps in allied air defense along the intended convoy track at the corridor between eastbound and westbound convoys led to the sinking of over seventy Allied ships, an indisputable German success.

Operational Fires: "...are considered operational when their application constitutes a decisive impact on the conduct of an operation. An attack of sea targets to achieve an operationally significant objective constitutes operational fires."[7]

The numerical strength of the U-boat arm in the North Atlantic was greater than 200 boats, by March 1943. U-boats segregated into attack screens must certainly be considered operational fire. This assault mechanism was capable of destroying an entire convoy, which may have consisted of as many



Map 3

FIGURE 2

GERMAN U-BOAT ATTACK SCREEN PLANS

as sixty five ships, in only one day. The attacks were so swift and decisive and the operational impact so great that by the end of the March operations the Allies were contemplating the abandonment of the entire convoy system.[8]

The key to the successful fires appeared to be the decisive employment of the attack screens before Allied air cover could be arranged, in most cases the greatest successes occurred the first day of an operation before reinforcements arrived.[9]

Operational Tempo: "The rate of work between engagements... the ability to shift quickly from one tactical engagement to another. Operational tempo is created in three ways, by multiple tactical actions taken simultaneously, by anticipating tactical results and developing advance sequels for exploiting the results, and by creating a command system based on decentralized decision-making."[10]

Doenitz's operational plans for the Atlantic battle were firmly based on his belief that rapid successive offensive engagements against the Allies was the best hope for victory.[11] The March offensive provided such an opportunity. Finally sufficient numbers of U-boats were available to cover the majority of the Northern Atlantic and intelligence was available to reveal convoy locations. These factors significantly aided in operational planning and execution.

The German U-boat command coordinated the operations by directing U-boats to convoy intercept points, as revealed by radio intelligence and sightings. The mechanism for attack

direction, encrypted radio dispatch from the submarine command center, enabled the attack screens to quickly strike then proceed to the next convoy. As a result of the heightened operational tempo, Germany converged and attacked five of the seven convoys in a period of twenty one days. Additionally, the U-boat command staff was careful not to limit the initiative of individual commanders, sufficient information was given to help locate and track the convoys without giving overly restrictive directions to the tactical commanders.

The German success of heightened operational tempo was certainly not without problems. Certainly one could argue that the system which required the U-boat commanders to frequently report positional information was a significant contributor to successful Allied counter-intelligence efforts and helped divert Allied convoys prior to attack group engagements.[12]

Additionally, the heightened tempo contributed to the Command Staffs misinterpretation of a U-boat report and erroneously diverted an attack screen away from a potential engagement with HX 229A.[13] Figure 3.

Despite shortcomings in command and control, it is this writer's opinion that Doenitz's recognition of the value of elevated operational tempo and his rapid employment of his forces provided an overall positive impact on the offensive.

Operational Phasing: "In an operation, a phase comprises a large battle or engagement. Each phase is an essential component in a connected string of events... The higher commander must

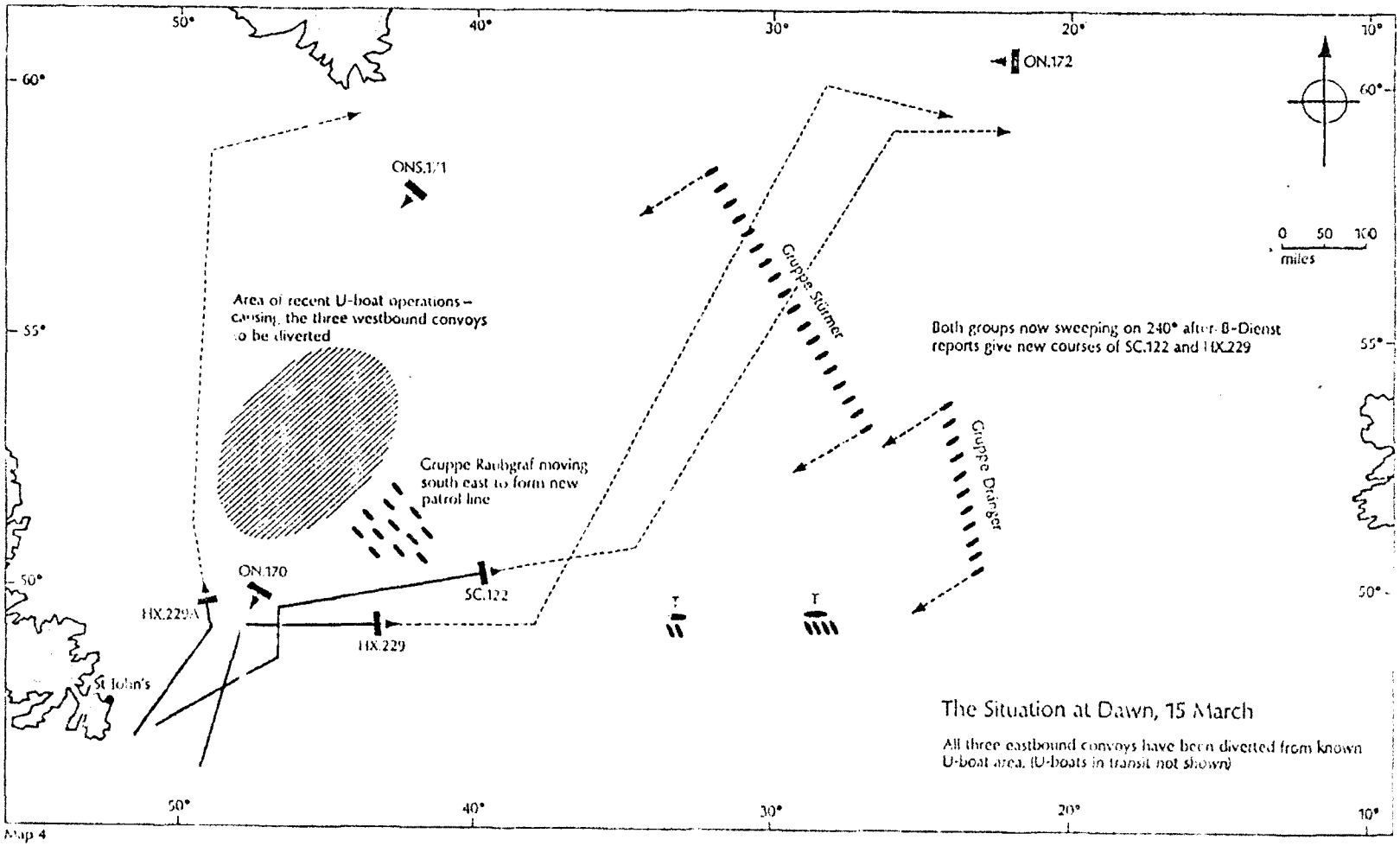


FIGURE 3

CONVOY HX 229A DIVERTED FROM U-BOAT ATTACK

constantly plan, as each battle progresses, so to direct his formations that success finds his forces in proper position and condition to undertake successive steps without a pause."[14]

From the outset of the critical battles of March, Doenitz recognized the importance of delivering a most decisive blow to Allied merchant shipping before their anti-submarine capabilities matured to the U-boat forces detriment.[15] Previous operations had shown the best chance for success of U-boat operations was during the first night particularly when the convoys were outside the range of shore based aircraft. To that end, forces were positioned to discreetly shadow convoys during the day then attack at dusk.

Each convoy, SC 121, HX 228, SC 122, and HX 229, with the assistance of the B-dienst, was located and transit course determined. Doenitz was able to position his attack screens precisely where they had the best opportunity to quickly engage in decisive battle then proceed to support subsequent attacks.

The Raubgraf group was positioned in a screen along the transit route of convoy SC 121, however a battle was avoided as a result of a gap in the screen which allowed SC 121 to slip through. The Westmark group was positioned farther east along the same transit route and conducted a successful four day operation against the convoy on 10 March.

The second phase was the operation of the Neuland group with HX 228 which was traveling along the southern great circle route to Britain, a second decisive victory for the Germans.

The third and climactic phase was the operation against convoys SC 122 and HX 229. Three attack screens were positioned to cut off the choke point near Newfoundland (Raubgraf group). A 600 mile screen was then established in the mid Atlantic (Sturmer and Dranger groups) to intercept the convoys if they avoided the Raubgraf group.

While avoiding the tactical details of each of the operations and battles, Doenitz and his staff were able, through intelligence and foresight, to identify convoy routes and position U-boats to destroy the well protected convoys. The end result; SC 121 lost thirteen ships without any U-boats losses; HX 228 lost four ships with the loss of two U-boats; SC 122 lost twelve ships and HX 229 crossed paths with the slower convoy SC 122 and lost a total of twenty ships while one U-boat was sunk and two badly damaged.[16] The success of each convoy operation contributed directly to subsequent battles. Ultimately, the success of each operation (phase) provided such cumulative destruction by mid March the Allies were prepared to abandon the convoy system altogether.[17]

Synchronization: "The key of success in an operation is to apply overwhelming force at decisive point. Operational level commanders establish favorable conditions for battle by coordinating all elements under their command and attacking the enemy...."[18]

Admiral Doenitz clearly controlled all facets of the U-boat operations from his command post. Concise coordinating

instructions were provided to each U-boat commander with the required guidance for reporting, tracking and, engaging convoys. Further, guidance was given for implementing water space management, coordinating night surface attacks and for repositioning screens upon completion of an attack or gained intelligence of additional convoys.[19] Doenitz was also given control over the few FW-200 maritime reconnaissance aircraft designated to support the U-boat force.

The U-boat staff proved extremely efficient in the deployment of the attack screens at the right place and time; unfortunately, one glaring deficiency existed. All control orders and reports to and from the command post were transmitted via wireless communications and were susceptible to enemy decryption and worse, Directior Finding (HF/DF). The more frequently radio transmissions were made the more accurate the HF/DF positions became. The significance of this deficiency will be addressed later.

Operational Deception: "... attempts to mislead the opponent to one's own intentions, to give a false idea of strength, to draw the opponent's attention away from the real attack."[20]

Deception was successfully conducted in four respects preceding and during the spring offensive: (1) The deployment of U-boats to alternate theaters certainly worked as a diversion to mask German intentions. The heavy Allied losses in November 1942 could certainly be attributed in part to the reduction of Allied escorts in the Atlantic which were detached to support

Mediterranean convoys.[21] (2) The Allies were deceived into believing the U-boat numerical strength during each phase of the war was much greater than actual. The power of audacious attacks led to the sinking of more than two million tons of Allied shipping in six months. Further, the well placed tanker U-boats helped sustain forward operations and led the Americans to believe the east coast was under attack by more than six U-boats.[22] (3) German use of intelligence, which predetermined convoy locations, contributed significantly to deceiving the Allies into believing the U-boats were capable of covering all convoy routes and remote areas of the Atlantic simultaneously. As a result, Allied merchantmen were directed to follow standard great circle transit routes to conserve fuel since group screens were present regardless of the chosen transit route. Only after Britain was able to effectively use counter intelligence to determine attack group locations were the convoys successfully diverted.[23] (4) Finally, during the operation against SC-122, several U-boats from the Raubgraf group were given direction to depart the attack screen to the south. They were then cleverly directed to transmit radio signals which alerted the Allies to their position but falsely led them to believe the entire attack screen was likewise to the south. The end result, the convoy was diverted directly into the path of the actual Raubgraf attack screen.[24]

German deception attempts were not without fault. In an attempt to mislead the British, U-boats from the Atlantic

were frequently diverted and reassigned to alternate theaters. Although the diversion to the Mediterranean Sea proved successful, U-boats were sent to the Baltic Sea, Arctic Ocean and to coastal guard duty for invasions that never occurred.[25] One could argue the decision, by the German High Command, to divert U-boats was in support of vital alternate strategic objectives. If in fact that was the case, one could not refute the decision significantly affected Doenitz's ability to carry out his operational plans since it reduced the U-boat forces available in the Atlantic.

Operational Sustainment: "Those logistic and support activities required for operations in a theater of war. In developing an operational plan, the operations commander must have reasonable confidence that the support structure can sustain the operating forces until major operational objectives are attained."[26]

The defeat of France provided a significant logistical advantage in that Germany had possession of Atlantic coast basing facilities 400 miles closer to the theater of operations than would have been available using ports in Germany proper. Even with this advantage, Doenitz recognized the need to be able to replenish his U-boats at sea in order to keep them engaged for the maximum length possible.[27]

To sustain the offensive thrust, replenishment boats (Milch Cows), which were actual large submarines, were developed and dispatched to critical areas to alleviate the need to frequently

return to port for resupply. See Figure 1. This savvy planning provided the opportunity to continuously attack for nearly a month or until all torpedoes were expended. Further, the sustained at sea operations significantly reduced the risk of Allied air attack during the surface transit through the Bay of Biscay since replenishment in port was less frequently required. During the first week of March two replenishment boats were able to conduct nearly thirty at sea refueling operations which significantly contributed to the sustained offensive, certainly an operational success.[28]

Operational Reconnaissance and Intelligence: "Provides information which impacts on the operation; it must reflect the broader perspective of operations... must take a wider view over area and a longer view over time... focuses on forecasting enemy capabilities, intentions, and options."[29] In preparing the intelligence estimate, staff officers must make use of the reconnaissance and surveillance assets of all services, allies, and national agencies.[30]

One need not search far to find examples of successful German intelligence. Specifically, the "B-Dienst" (cryptographic section) had succeeded in breaking enemy ciphers such that British convoy routing instructions as well as British U-boat situation reports were available and disseminated to the fleet as necessary.[31] Certainly the operational impact of this information was significant as it essentially cut the Atlantic battlefield into smaller manageable portions.

Immediately preceding the March offensive, German counter-intelligence identified the need to change its transmission ciphers. As a result, Britain was denied vital information from her "Ultra" decryption organization and was forced to speculate German intentions. Significant allied loses, during these critical convoy battles, resulted.[32]

Further, the fortuitous recovery of a British aircraft revealed the inadequacy of German radar reception gear in that Britain was capable of operating her radars outside the frequency spectrum of the German receivers. This intelligence coup led Germany to the research and development of more sophisticated radars and receivers.

Although German intelligence significantly contributed to the success of the March offensive operation, one should note German intelligence shortcomings proved to be the detriment which greatly outweighed some of the intelligence gains. The two significant deficiencies were the lack of air reconnaissance support and the failure to identify Britain's use of high frequency/ direction finding (HF/DF) techniques to locate German attack screens.

Regarding air reconnaissance and support, successful operational reconnaissance and intelligence is achieved through the exploitation of all assets and services, the conspicuous lack of Luftwaffe support proved insurmountable. Limited numbers of reconnaissance aircraft were available to locate and report enemy convoy formations; however, their utility was marginal because

the flights were infrequent and navigational inaccuracy was such that convoy position reports were suspect at best.[33]

The limited availability of aircraft presented additional problems. The absence of Luftwaffe aircraft provided Allied aircraft unopposed intervention into U-boat attack screen raids. U-boat formations were more easily located and reported in sufficient time for convoys to be diverted away.[34]

The German operational maneuver success of striking the convoys at the gap in Allied air cover contributed to the success of the March operation but was ineffective once the gaps were closed by Allied use of extended range aircraft and escort carriers.

In all fairness to the theater commander, the air reconnaissance issue should be viewed as a strategic decision which affected the operational level of war. Admiral Doenitz clearly recognized the need for air reconnaissance support and made his opinion known to the German High Command. Unfortunately, strong disagreement existed between Admiral Doenitz and Field Marshal Goering, Commander in Chief Luftwaffe, regarding the use of air assets. Although Hitler promised increased air support for U-boat operations, adequate Luftwaffe support was never made available.[35]

An evaluation of Luftwaffe availability and assignment priority is beyond the scope of this paper; however, one can certainly not dispute if success in the Atlantic was as high a strategic priority as Doenitz was led to believe, certainly a

greater portion of aircraft should have been made available to support the U-boat effort. In this writer's opinion, if more reconnaissance aircraft had been available to support the major operation of 15 March, convoy HX 229A, which evaded detection, may have been identified and attacked as severely as SC 122 and HX 229.

In view of the lack of coordination between the air and naval arms of the German armed forces one could reasonably conclude that joint service support did not exist and certainly contributed to the ultimate German defeat.

Regarding high frequency radio detection, Germany failed to recognize the frequent radio transmissions by her U-boats, to the U-boat Command Staff, significantly contributed to the compromise of her attack screen positions in the Atlantic. Although B-Dienst decryptions revealed the British were able to locate U-boats through "sightings, D/F bearings and radar location." Germany never realized her high frequency radio transmissions provided Britain with cross bearing position location without the need to decipher the transmitted messages.[36] The Germans were confident that message traffic could not be deciphered and therefore gave no consideration to minimize radio transmissions for HF/DF purposes. As a result, U-boat positions were accurately identified which enabled the British to divert her convoys. Specifically, HX 229A was successfully diverted and avoided contact altogether.[37]

Review of the Operational Scheme

In retrospect, one should see the overall operational scheme worked extremely well and led to significant destruction of Allied merchant shipping during the critical March operations. Doenitz thoroughly understood how to accomplish his theater objectives and recognized the correct center of gravity, Allied merchant shipping. His understanding and execution of maneuver, deception, tempo, synchronization and sustainment enabled his U-boat forces to strike decisive blows to Allied shipping and destroy nearly 700,000 tons of shipping during the month of March, the highest total for the entire war.

Reconnaissance and intelligence also proved essential for the planning and execution of the operations. Unfortunately, the shortcomings related to reconnaissance and intelligence greatly contributed to Germany's ultimate defeat. In the opinion of this writer, if more aircraft had been available, convoy locations could have been more easily determined and the mistaken identification and location of convoy HX 229A would never have occurred.

Regarding intelligence, although the B-dienst was very effective in decrypting British radio signals, the secret behind British HF/DF successes could never be pinpointed.

CHAPTER V

POST OPERATION HISTORICAL SUMMARY

The March convoy battles produced the greatest destruction of Allied shipping during the entire war and literally brought the Allied merchant fleets to their knees. History recorded these battles as the culminating point after which the German U-boat effort was forced to capitulate due to overwhelming losses. Clearly the increased U-boat losses resulted from Allied use of long range aircraft and escort carriers. These assets enabled the Allies to close the air gaps in the mid Atlantic and couple anti-submarine capability with the air assault arm of the escort carriers.[1] On 24 May 1943 the U-boat war was over and Admiral Doenitz ordered his U-boats out of the North Atlantic.

With regard to the Atlantic, the remainder of the war was characterized by German technological improvements for her U-boats. Improved speed, a snorkel system to lengthen submergence duration and an improved battery proved to be significant accomplishments. Further, radar transmission, reception and detection capabilities also improved. These material gains certainly contributed to the occasional successful convoy raids but German superiority over the seas had been long ago eclipsed. Allied convoy air cover through carrier escorts and long range aircraft proved too great for Germany to counter.

CHAPTER VI

CONCLUSIONS

The benefit derived from historical study and analysis is the application of lessons learned to future operations. The operational success of the Doenitz's convoy offensive during the spring of 1943 and the ultimate failure of Germany in the Battle of the Atlantic provide several critical lessons for operational commanders. Prior to the presentation of the conclusions, one qualification is required.

The reasons behind the strategic decisions that adversely impacted the conduct of the operation, specifically the diversion of U-boat assets from the Atlantic theater and the failure to authorize and allocate sufficient Luftwaffe assets in support of the U-boats, were beyond the scope of this research and could only be addressed from the standpoint of their impact on the Atlantic operations.

The following conclusions and lessons are presented for consideration in future operational planning:

(1) Admiral Doenitz's operational scheme, despite its flaws, was well conceived and well planned and reasonably well executed in support of the successful spring 1943 U-boat offensive.

(2) The failure of the German High Command and Admiral Doenitz to reconcile strategic guidance and operational means led to inefficient execution of the offensive and to Germany's

ultimate defeat in the Atlantic campaign. For today's theater commanders, clearly the implication is the lack of adequate resources can result in less than effective achievement of operational and strategic objectives.

(3) Intelligence and reconnaissance are essential elements for successful plans and execution of operations. Operational commanders must not only have the benefit of all intelligence resources but must exploit those resources to their maximum extent.

(4) The need for mutually supportive joint operations between service arms and service chiefs is imperative for the successful conduct of operations. Today's operational commanders must ensure within his organization there exists a mechanism to determine inter-service military requirements then translate that need to higher authority for allocation of necessary assets. He must then coordinate the assets into a functional joint operation.

The most superior operational plans have a marginal chance for success when strategic guidance and joint coordination is incompatible with theater objective accomplishment.

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